AMENDMENTS TO THE CLAIMS

Please amend the claims as indicated in the following listing of all claims:

1.   (Currently amended) A data network comprising:

a sending node;

a receiving node coupled to receive a plurality of data information packets from the sending node; and

at least a first and second transmission channel coupled to the sending and receiving nodes, wherein each data information packet transmitted across the network is selected for transmission on one of the first and second transmission channels according to predetermined criteria and wherein the first and second transmission channels are, respectively, a low latency channel for transmitting data packets meeting a low latency criteria, and a high bandwidth channel for transmitting data packets meeting a high bandwidth criteria and wherein information relating to scheduling of the high bandwidth channel is transmitted over the low latency channel.

2.   (Cancelled)

3.   (Cancelled)

4.   (Cancelled)

5.   (Currently amended) ~~The data network recited in claim 1~~ A data network comprising:

a sending node;

a receiving node coupled to receive a plurality of data information packets from the sending node; and

at least a first and second transmission channel coupled to the sending and receiving nodes, wherein each data information packet transmitted across the network is selected for transmission on one of the first and second

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transmission channels according to predetermined criteria and wherein the predetermined criteria includes at least one selected from the set of ~~a size of a data information packet,~~ a type of operation associated with the data information packet, ~~a latency budget for the data information packet,~~ security needs of the data information packet and reliability needs of the data information packet and wherein one of the first and second transmission channels is coupled to transmit control information relating to network protocol according to the predetermined criteria.

6.   (Currently amended) The data network recited in claim ~~5~~ 1, wherein a software program allocates the data information packet to one of the transmission channels according to at least one of the predetermined criteria.

7.   (Original) The data network recited in claim 6, wherein the software program is one of a user program and a system program.

8.   (Currently amended) ~~The data network recited in claim 5,~~ A data network comprising:

    a sending node;

    a receiving node coupled to receive a plurality of data information packets from
        the sending node; and

    at least a first and second transmission channel coupled to the sending and
        receiving nodes, wherein each data information packet transmitted across
        the network is selected for transmission on one of the first and second
        transmission channels according to predetermined criteria and wherein the
        predetermined criteria includes a type of operation associated with the data
        information packet and

wherein the type of operation includes a synchronization operation.

9.   (Original) The data network recited in claim 8, wherein the synchronization operation includes at least one of a lock operation, an atomic read-modify-write operation, and a fetch-and-increment operation.

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10.   (Original) The data network recited in claim 1 wherein the data network is a switched data network having at least one switch for each channel.

11.   (Original) The data network recited in claim 1 wherein at least one of the sending node and the receiving node includes a plurality of buffer descriptors identifying memory segments containing data.

12.   (Original) The data network recited in claim 1 wherein the sending node and the receiving node are nodes within a cluster network.

13.   (Currently amended) The data network as recited in claim 2 1 wherein a node includes separate send and receive buffers for the first and second transmission channels.

14.   (Currently amended) The data network as recited in claim 2 further comprising: A data network comprising:
a sending node;
a receiving node coupled to receive a plurality of data information packets from the
sending node; and
at least a first and second transmission channel coupled to the sending and receiving
nodes, wherein each data information packet transmitted across the network is
selected for transmission on one of the first and second transmission channels
according to predetermined criteria wherein the first and second transmission
channels are, respectively, a low latency channel for transmitting data packets

meeting a low latency criteria, and a high bandwidth channel for transmitting data packets meeting a high bandwidth criteria; and

a scheduler circuit for the high bandwidth channel coupled to the high bandwidth channel and low latency channel; and wherein the scheduler circuit is coupled to receive a request sent into the low latency channel, the request requesting permission to transmit a packet over the high bandwidth channel, the scheduler logic responsive to the request to provide a grant indication over the low latency channel indicating the request was granted.

15.	(Original) The data network as recited in claim 14 wherein the grant indication is provided at a fixed time relative to a predetermined time period, and the grant indication synchronizes nodes of the network to the predetermined time period.

16.	(Original) The data network as recited in claim 14 wherein the grant indication includes a unique identifier corresponding to a number of an output port through which the grant indication was sent and wherein during node initialization, a node coupled to the output port listens to grant packets and uses the unique identifier as its node identifier in subsequent transactions over the data network.

17.	(Original) The data network as recited in claim 14 wherein the grant indication is transferred with a higher priority across the low latency channel than other low latency traffic.

18.	(Original) The data network as recited in claim 14 wherein the request indication, the grant indication and an acknowledge indication are always sent at different times over the low latency channel, thereby avoiding collisions between the request indication, the grant indication and the acknowledge indication, the acknowledge indication being sent by a receiving node over the low latency channel to indicate successful receipt of information sent over the high bandwidth channel.

19.	(Currently amended) ~~The data network as recited in claim 2~~ A data network comprising:

a sending node;

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a receiving node coupled to receive a plurality of data information packets from the sending node; and

at least a first and second transmission channel coupled to the sending and receiving nodes, wherein each data information packet transmitted across the network is selected for transmission on one of the first and second transmission channels according to predetermined criteria wherein the first and second transmission channels are, respectively, a low latency channel for transmitting data packets meeting a low latency criteria and a high bandwidth channel for transmitting data packets meeting a high bandwidth criteria , and wherein a receiving node sends an acknowledge indication over the low latency channel, the acknowledge indication indicating successful receipt of information sent over the high bandwidth channel.

20. (Original) The data network as recited in claim 19 wherein the acknowledge indication is transferred with a higher priority across the low latency channel than other low latency traffic.

21. (Currently amended) The data network as recited in claim ~~1~~ 5 wherein at least one of the first and second transmission channels have characteristics facilitating transfer based on the predetermined criteria~~, the predetermined criteria including at least one of low latency, high bandwidth, security and reliability~~.

22. (Currently amended) A method for transmitting data traffic between at least a first and second node in a network having at least a first and second transmission channel, the method comprising:

organizing the data traffic prior to transmission across the network into at least a first and second group according to predetermined criteria; ~~and~~

transmitting the first group of the data traffic over the first transmission channel and the second group of the data traffic over the second transmission channel wherein the first and second transmission channels are respectively a high bandwidth channel and a low latency channel; and

scheduling transmittal of data traffic across the high bandwidth channel using control information transmitted over the low latency channel.

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23. (Original) The method recited in claim 22 wherein the first and second transmission channels are independent.

24. (Original) The method recited in claim 22 further comprising:

transmitting control information relating to network protocol over one of the first and second transmission channels along with one of the first and second groups of data traffic.

25. (Currently amended) The method recited in claim 24 ~~wherein the first and second transmission channels are respectively a high bandwidth channel and a low latency channel, and~~ wherein the first group of data traffic is transmitted over the low latency channel, the low latency channel for transmitting data packets meeting a low latency criteria; and wherein the second group of data traffic is transmitted over the a high bandwidth channel, the high bandwidth channel for transmitting data packets meeting a high bandwidth criteria.

26. (Cancelled)

27. (Currently amended) The method recited in claim ~~26~~ 25 further comprising:

transferring the control information across the low latency channel with a higher priority than the first group of data traffic transferred across the low latency channel, the control information being related to scheduling of the high bandwidth channel.

28. (Original) The method as recited in claim 27 wherein the higher priority prevents the control information from being dropped.

29. (Original) The method recited in claim 25 further comprising:

transmitting smaller sized data packets across the low latency channel with limited scheduling; and

transmitting highly scheduled large sized data packets across the high bandwidth channel.

30. (Currently amended) ~~The method recited in claim 22~~ A method for transmitting

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data traffic between at least a first and second node in a network having at least a first and second transmission channel, the method comprising:

organizing the data traffic prior to transmission across the network into at least a first and second group according to predetermined criteria; and

transmitting the first group of the data traffic over the first transmission channel and the second group of the data traffic over the second transmission channel wherein the predetermined criteria includes ~~one or more of a size of a packet being organized into one of the first and second groups, a type of operation associated with the data packet, a latency budget for the data packet,~~ a security level of the data packet, ~~and criticality of the information contained in the data packet~~ and wherein one of the first and second transmission channels is coupled to transmit control information relating to network protocol according to the predetermined criteria.

31.   (Original) The method recited in claim 30 further comprising:

allocating data packets to one of the transmission channels according to the predetermined criteria.

32.   (Original) The method recited in claim 22 wherein at least one of the transmission channels is associated with a plurality of lists of buffer descriptors, the lists of buffer descriptors related to a plurality of memory segments.

33.   (Currently amended) An apparatus for transmitting data traffic and control information between at least a first and second node of a network, the control information related to protocol of the network, the apparatus comprising:

means for organizing the data traffic into at least a first and second group according to predetermined criteria; ~~and~~

means for transmitting the data traffic using an independent transmission channel for the
first and second group;

means for transmitting the control information across one of the transmission channels;

means for transmitting the second group of the data traffic having high bandwidth
characteristics; and

means for transmitting the first group of the data traffic having low latency
characteristics.

34.   (Cancelled)

35.   (Cancelled)

36.   (Currently amended) A computer program product encoded in at least one
computer readable medium, the computer program product comprising:

code executable to select one of at least two independent transmission channels of a
network for transmission of data according to criteria associated with the data;
and

code executable to write the data into one of the two independent transmission channels
wherein the two independent transmission cannels include a low latency channel for
transmitting data packets meeting a low latency criteria, and a high bandwidth
channel for transmitting data packets meeting a high bandwidth criteria and
wherein information relating to scheduling of the high bandwidth channel is
transmitted over the low latency channel.

37.　(Original) The computer program product as recited in claim 36 wherein the code writes the data into one of the two independent transmission channels by writing into a buffer associated therewith.

38.　(Cancelled)

39.　(Original) The computer program product as recited in claim 36, wherein the at least one computer readable medium is selected from the set of a disk, tape or other magnetic, optical, or electronic storage medium and a network, wireline, wireless or other communications medium.